

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

May 3, 2024

**FINANCIAL ASSISTANCE CENTER
FINDING OF NO SIGNIFICANT IMPACT/ENVIRONMENTAL ASSESSMENT**

TO: ALL INTERESTED GOVERNMENT AGENCIES AND PUBLIC GROUPS

In accordance with procedures for environmental review found at 10 CSR 20-4.050, the Department has performed our review on the proposed action below:

PROJECT INFORMATION:

Project Identification: Republic Wastewater Treatment Facility Expansion Project

Applicant: City of Republic

Project No.: C295903-05

City: Republic

County: Greene

State: Missouri

Total Project Amount: \$105,040,600

Total Clean Water State Revolving Fund Eligible Costs: \$58,000,000

- Potential Loan: \$58,000,000.00
- Potential Grant: \$ 0.00

COMMUNITY DESCRIPTION:

Location: The City of Republic is located primarily within Greene County, with a small southern portion running along S. State Highway P being in Christian County. The Republic Wastewater Treatment Facility (WWTF) is located entirely within Greene County, in the northwest portion of the city, at the northern terminus of N. West Avenue.

Population, Present and Projected, and Design Year: The existing WWTF design population is 32,000 people. The current projected population for the City of Republic in a 20-year design period is estimated to be 49,289.

Current Methods of Waste Treatment: The current Republic WWTF consists of a treatment train with the following components: influent pump station, peak flow basin, headworks system including a grinder, mechanical screening, grit removal system and grease separation, three selector basins, three oxidation ditches, three final clarifiers, a tertiary filtration system,



UV disinfection, three aerobic digesters, and sludge equalization basin. The current design flow for the facility is 3.2 million gallons per day (MGD), with an actual flow of 1.7 MGD, and a sludge production rate of 209 dry tons per year.

PROJECT DESCRIPTION:

Purpose and Need: The purpose of the proposed improvements are to address three concurrent issues that exist for the Republic WWTF. First, more stringent effluent limits are anticipated for the treatment facility in the future, particularly with the consideration that the facility discharges to a losing stream. Secondly, anticipated growth for the city will require upgrades in available capacity to ensure proper treatment can be maintained. Finally, portions of the treatment facility are aged and worn to the point of needing replacement for continued operation.

Description of Project: The proposed scope includes the construction of the following:

- New influent pump station and headworks building that includes grit removal and fine screening
- Biological treatment basins with anaerobic, anoxic, and aerobic treatment zones
- An alum feed system for phosphorus treatment
- Membrane bioreactors
- Return-activated sludge (RAS) and waste-activated sludge (WAS) pumping
- Conversion of the digester aeration system to diffused aeration
- Construction of an additional aerobic digester
- A centrifuge dewatering system
- Conversion of an existing aeration complex to an equalization basin for wet weather holding
- An administration building
- Backup power generators
- Supervisory Control and Data Acquisition (SCADA) upgrades for the facility
- Related appurtenances for upgrades or rehabilitation for the treatment facility (including piping and electrical service)

Design Factors: The proposed average design flow for the Republic WWTF's planned upgrade is 5 MGD, for an anticipated 20-year projected population of 49,289. The facility will have a total peak flow capacity, including peak wet weather treatment, of 16 MGD. The average daily organic load for the proposed facility will be 8,200 lb/day of BOD₅. The proposed facility upgrade will also allow for the facility to meet anticipated effluent limits that may be implemented for the Stockton Lake watershed for nitrogen and phosphorus.

Receiving Stream: The Republic WWTF discharges to a tributary to Dry Branch. Dry Branch is a losing stream and has the following beneficial uses: protection of aquatic life (warm water habitat), human health protection, irrigation for use on crops utilized for human or livestock consumption, livestock and wildlife watering, secondary contact recreation, and whole-body contact recreation that supports swimming. The permit limits for the facility are derived to protect the beneficial uses of the receiving stream.

ALTERNATIVES CONSIDERED:

Not Selected – Alternative No. 1 looked at expanding the existing treatment facility to 5 MGD while still utilizing the same treatment methods. This would require a replacement of the existing infrastructure for preliminary treatment (influent screening, grit removal), filtration, and UV disinfection system to meet the new design flow and peak hydraulic capacities. Secondary treatment would be increased by the addition of another treatment train to the existing facility. With new limits for Total Nitrogen and Total Phosphorus being anticipated, additional treatment infrastructure for all the treatment trains would need to be added as well. The three aeration trains would have different capacities, causing operational complexities. The estimated capital cost of this alternative was estimated to be approximately \$120,000,000, with a present worth cost estimated at \$170,000,000.

Not Selected – Alternative No. 2 considers land application as a non-degrading treatment alternative for the Republic WWTF. Considering a maximum application rate of 24 inches per year and considering the plan to expand the facility to 5 MGD, it is estimated that 2,800 acres would need to be acquired to meet that application rate. Additionally, further infrastructure upgrades would be necessary to transport wastewater to the application site, disperse the wastewater to the receiving fields, and provide sufficient storage capacity to do this type of treatment. The cost for land purchase as a part of this alternative alone is estimated be \$56,000,000, which would increase significantly based on the costs of the necessary equipment to go with it. In addition, the land acquisition needed to do this treatment may not be feasible even if the costs of the alternative did not present issues.

Not Selected – Alternative No. 3 briefly considers regionalization as a way of treating the wastewater flow from the City of Republic. The closest option would be to connect to Springfield, Missouri, which would require a 6-mile connection. However, in between the two cities is the Wilson's Creek National Battlefield, which is listed on the National Register of Historic Places. Between the cost of the alternative and the barriers that would exist to do this construction through a site on the National Register of Historic Places, this option is cost prohibitive to implement.

Selected – Alternative No. 4 proposes several upgrades to the existing wastewater treatment facility to address potential concerns related to increasing facility capacity, increasing level of treatment, and addressing aging infrastructure. This alternative includes construction of the following components:

- New influent pump station and headworks building that includes grit removal and fine screening
- Biological treatment basins with anaerobic, anoxic, and aerobic treatment zones
- An alum feed system for phosphorus treatment
- Membrane bioreactors
- Return-activated sludge (RAS) and waste-activated sludge (WAS) pumping
- Conversion of the digester aeration system to diffused aeration
- Construction of an additional aerobic digester
- A centrifuge dewatering system

- Conversion of an existing aeration complex to an equalization basin for wet weather holding
- An administration building
- Backup power generators
- SCADA upgrades for the facility
- Related appurtenances for upgrades or rehabilitation for the treatment facility (including piping and electrical service)

The estimated capital cost is \$119,000,000 with a present worth of \$174,000,000.

Not Selected – Alternative No. 5 is a no action alternative. This alternative was not ultimately considered, as the facility needs upgrades to address aging infrastructure, anticipated growth for the community, and to meet upcoming effluent limits. Taking no action would cause compounding issues that would lead to the facility being out of compliance and potential degradation of the receiving waters for the treatment facility.

REASONS FOR SELECTION OF PROPOSED ALTERNATIVE:

Alternative No. 4 was determined to be the most cost effective, practical, and feasible. Pursuing the option of upgrading the treatment facility will improve effluent quality in the near term, while also addressing projected future growth for the City of Republic and providing flexibility to meet anticipated effluent limits.

ENVIRONMENTAL IMPACT SUMMARY:

1. Primary:

- Construction: Temporary surface disruption, blowing dust, and noise from vehicles and equipment will occur during construction, but the City of Republic expects these impacts to be minor and temporary in nature.
- Environmental: The proposed project will provide a greater degree of treatment to the wastewater processed by the treatment facility, as well as allow for treatment for anticipated growth that will result in a higher flow of wastewater. As a result, the receiving waters the facility discharges to will have improved effluent quality, which will benefit the surrounding environment.
- Financial: The current rates for an existing user inside the city are \$82.68 for a 5,000-gallon monthly usage. The rates will be updated as a part of this project, increasing to \$135.39 for using 5,000 gallons monthly.

2. Secondary:

- Population Impacts: The City of Republic anticipates no significant change in population trends resulting from this project. No significant relocation of people or structures are expected to result from this project. This project will not serve any new areas.

- b. Land use and Trends: The City of Republic anticipates no significant change in land use trends resulting from this project. The city expects no development of sensitive areas.
 - c. Environmental: The City of Republic does not expect secondary environmental impacts caused by this project.
- 3. Mitigation Measures Necessary to Eliminate Adverse Environmental Effects: Best management and good engineering practices should minimize noise, blowing dust, and erosion normally associated with construction. The city will promptly restore disturbed areas.
- 4. Irreversible and Irretrievable Commitment of Resources: Fuel and construction materials will be irretrievably committed to this project. Future funds will be committed to the operation and maintenance of the system.

PUBLIC PARTICIPATION:

- 2. Public Involvement: The City of Republic held a public meeting on February 20, 2024, at 540 Civic Boulevard, in the City of Republic, Missouri.
- 3. Public Opposition or Opinions: The public expressed no adverse opinions to the project.

COORDINATION AND DOCUMENTATION WITH OTHER AGENCIES AND SPECIAL INTEREST GROUPS:

- 1. Facility Plan Dated: February 21, 2022 (Wastewater Master Plan Update) and February 27, 2024 (Revised Basis of Design Report)
Prepared By: Burns & McDonnell Engineering Co., Inc.

Environmental Information Document: March 13, 2024
Prepared By: Burns & McDonnell Engineering Co., Inc.
- 2. Federal:
 - a. U.S. Fish and Wildlife Service
 - b. U.S. Army Corps of Engineers
- 4. State:
 - a. Missouri DNR – State Historic Preservation Office
 - b. Missouri DNR – Missouri Geological Survey
 - c. Missouri Department of Conservation
 - d. Missouri Office of Administration – Federal Assistance Clearinghouse

5. Consulting Engineer: Burns & McDonnell Engineering Company, Inc.
425 S. Woods Mill Road
Chesterfield, MO 63017
6. In accordance with the National Historic Preservation Act Section 106, notice was given to all tribes that may attach a religious or cultural significance to historic properties in the region that may be affected by this undertaking.

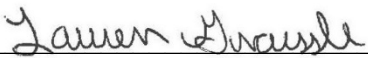
Positive Environmental Effects to be Realized from the Proposed Project: This project will improve the quality of the effluent being discharged to the receiving stream for the facility. This project will also increase the treatment capacity of the facility, which will ensure that the facility can continue to discharge effluent of a sufficient treatment level to the receiving stream as population in the City of Republic continues to grow.

Reasons for Concluding There Will Be No Significant Impacts: The proposed project will have a positive impact on water quality and will not result in any significant adverse impacts on rare or endangered species, floodplains, wetlands, recreational areas, cultural/archaeological sites, or air quality. Population densities and land use trends will not be significantly affected. Appropriate mitigation measures will be implemented for minor impacts, which are expected to be temporal in nature.

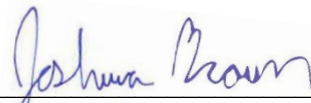
This action is taken on the basis of a careful review of the facility plan and supporting documentation on file in the office of the Missouri Department of Natural Resources' Financial Assistance Center at 1101 Riverside Drive, Jefferson City, MO 65101. These are available for public review upon request Monday-Friday, 8:00 a.m. to 5:00 p.m. This agency will not take any administrative action on this project for at least 30 calendar days from the date of this document. Persons wishing to comment on the above environmental decision may submit comments to Joshua Brown of the Missouri Department of Natural Resources, Financial Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176, during this period. E-mail comments will be accepted at the following address: DNR.SRFPublicNotice@dnr.mo.gov. Please include the project name and number in all comment letters. Thank you.

Sincerely,

FINANCIAL ASSISTANCE CENTER



Lauren Graessle, P.E.
Director



Joshua Brown, P.E.
Project Review Engineer

LG:jbc

May 3, 2024

Date

Attachments

DISTRIBUTION

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Jefferson City, MO 65102

Conservation Federation of Missouri
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Jefferson City, MO 65101

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c/o Carter Tharp – WWPD/SRFB
E-mail: Tharp.carter@epamail.epa.gov

Missouri Department of Natural Resources
Missouri Geological Survey
Environmental Geology Section
P.O. Box 250
Rolla, MO 65402-0250

Missouri Department of Natural Resources
Division of State Parks
State Historic Preservation Office
P.O. Box 176
Jefferson City, MO 65102-0176

U.S. Fish and Wildlife Service
Ecological Services
101 Park DeVille Drive, Suite A
Columbia, MO 65203-0057

National Park Service
Midwest Region
E-mail: mrwo_compliance@nps.gov

USDA Rural Development
601 Business Loop 70 West
235 Parkade Center
Columbia, MO 65203

Gilmore and Bell, P.C.
c/o Shannon Walsh Creighton
One Metropolitan Square
211 North Broadway, Suite 2000
St. Louis, MO 63102-2741

SRF File C295903-05

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Missouri Department of Natural Resources
Southwest Regional Office
2040 West Woodland
Springfield, MO 65807-5912

Greene County Commonwealth
312 South Hickory Street
Mt. Vernon, MO 65712

Environmental Protection Agency
Office of Federal Activities
Ariel Rios (2252A)
1200 Pennsylvania Avenue, N.W.
Washington, DC 20004

Council of Environmental Quality
722 Jackson Place, N.W.
Washington, DC 20503

U.S. Army Corps of Engineers
Kansas City District
Missouri State Regulatory Office
515 East High Street #202
Jefferson City, MO 65101

Southwest Missouri Council of Governments
901 South National Avenue
Springfield, MO 65897

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Republic WWTF



Division of Environmental Quality
Financial Assistance Center

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